

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Slawson Exploration Company, Inc.
Well Name/Number: Dirk Federal 1-22-21H
Location: NW NW Section 23 T21N R59E
County: Richland, MT; Field (or Wildcat) Wildcat (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 35-40 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a single lateral horizontal Bakken well test, 20,253' MD/10,314' TVD.

Possible H₂S gas production: Slight chance H₂S gas production (Mississippian Formations).

In/near Class I air quality area: No Class I air quality area in the area of review.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☒ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: If there are existing pipelines for H₂S gas in the area then gas must be tied into system or if no gathering system nearby H₂S gas can be flared under Board Rule 36.22.1220. This is a single lateral, 20,253' MD/10,314' TVD, Bakken Formation horizontal well.

Water Quality

(possible concerns)

Salt/oil based mud: Yes intermediate string casing hole will be drilled with oil based invert drilling fluids. Oil based invert drilling fluids will be utilized to drill the horizontal lateral. Surface casing hole will be drilled with freshwater and freshwater mud.

High water table: No high water table expected in the area of review.

Surface drainage leads to live water: No, closest drainages are unnamed ephemeral tributary drainages to O'Brian Creek, about 1/4 of a mile to the east and about 1/4 of a mile to the west from this location.

Water well contamination: No, closest nearby water wells are about 1/2 of a mile to the northwest, about 5/8 of a mile to the northeast, about 5/8 of a mile to the southwest, about 3/4 of a mile to the southwest, about 3/4 of a mile to the northeast, about 3/4 of a mile to the southeast, about 3/4 of a mile to the northwest and about 7/8 of a mile to the northeast from this location. Depth of these wells are from 90' and 1400' in depth. Operator's permit states surface casing to be set at 1550', recommend that surface casing be set at 1660' to ensure that the Base of the Fox Hills formation is covered. Surface hole will be drilled with freshwater and surface casing will be cemented to surface from 1660'.

Porous/permeable soils: No, silty sand clay soils.

Class I stream drainage: No, Class I stream drainages in the area of review.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☒ Off-site disposal of solids/liquids (in approved facility)

☒ Other: Lined surface cuttings pit will be dug for cuttings. Cuttings will either be buried on wellsite or trucked to an authorized disposal facility.

Comments: 1660' surface casing to be set to protect freshwater zones and to cover the Fox Hills

aquifer. Adequate surface casing and operational BOP equipment should prevent any drilling problems.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None, crossing only ephemeral drainages anticipated.

High erosion potential: Yes, location will require moderate cut, up to 17.4' and moderate fill, up to 15.5', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Yes, very large well site 405' X 550', a dual well location for the Hunga Munga 1-14H and Dirk Federal 1-22-21H.

Damage to improvements: Slight, surface use is a grazing grass land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Access will be over existing county road, #261. An access road will be built into location off the existing county road, 261, about 192' of new road will be built into this location. Cuttings will either be buried and solidified in the lined cuttings pit or trucked to an authorized disposal site. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to a Class II disposal. Pit will be allowed to dry before being backfilled. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 1/2 of a mile to the northeast and 7/8 of a mile to the north from this location.

Possibility of H2S: Slight chance H2S(Mississippian Formations).

Size of rig/length of drilling time: Triple drilling rig 35 to 40 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems. Distance sufficient to mitigate noise problems from the drilling rig.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Little Missouri National Grassland is about 3.5 miles to the east from this location, just across in North Dakota.

Proximity to recreation sites: Little Missouri National Grassland is about 3.5 miles to the east from this location, just across in North Dakota.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species Threatened or endangered species listed in Richland county by USFW service are Pallid Sturgeon, Piping Plover, Interior Lease Tern and Whooping Crane. Candidate species

are the Greater Sage Grouse and the Sprague's Pipit. NH tracker website lists the following as "Species of Concern" eight (8) are listed as follows: Hoary Bat, Meadow Jumping Mouse, Grasshopper Sparrow, Great Blue Heron, Veery, Whooping Crane, Loggerheaded Shrike and Spiny Softshell turtle.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Surface is private grass grazing land. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☒ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Surface is private grass grazing land. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Wildcat well. No concerns.

Remarks or Special Concerns for this site

A single lateral Bakken horizontal well test, 20,253' MD/10,314' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki

(title:) Chief Field Inspector

Date: February 12, 2012

Other Persons Contacted:

(Name and Agency)

Montana Bureau of Mines and Geology, Groundwater Information Center
website.

(subject discussed)

Water wells in Richland County

(date)

February 12, 2012

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County

(subject discussed)

February 12, 2012

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T21N R59E

(subject discussed)

February 12, 2012

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____